

1-15. CANCELED

16. (NEW) A method of laser micro-machining a work piece with a laser, the method comprising by the steps of:

locating the workpiece on a carrier forming a part of a transport system whereby the carrier can be displaced along a path parallel to an X-axis of the workpiece, a Y-axis lying transverse the path, and a Z-axis lying transverse the path;

focusing an image generated by an output beam from the laser, at a working datum position defined relative to the path, the path is established by the transport system to traverse the first datum position;

defining a plane by the X- and Y-axis lying substantially perpendicular to the output beam;

displacing the workpiece along the path by way of the transport system so as to enable the work-piece to be subject to micro-machining by way of the laser;

maintaining a distance between the datum position and a current first surface position of the workpiece in a vicinity of the of the datum position; and

varying the working datum position to accord with local variations in thickness of the workpiece so that the working datum position is maintained at a fixed distance relative to a surface of the workpiece.

17. (NEW) The method as claimed in claim 16, further comprising the step of varying the working datum position by displacing one of the focusing or imaging lens relative to the workpiece.

18. (NEW) The method as claimed in claim 16, further comprising the step of varying the working datum position by displacing the work-piece relative to the focusing or imaging lens.

19. (NEW) The method as claimed in claim 16, further comprising the step of undertaking the sensing step by a distance sensing device comprising a body member riding on a fluid cushion on a first surface of the workpiece, the fluid cushion being established by a flow of fluid fed from the body member so as to maintain the body member at a predetermined distance from first surface; and in the event the body member being displaced from a current position of the body member due to a variation in thickness of the workpiece, any change in position of the body member perpendicular to the first surface is used to modify position of the lens to cause a corresponding

change in the current datum position to restore the working datum position to a fixed distance relative to the first surface of the workpiece.

20. (NEW) The method as claimed in claim 19, further comprising the step of providing the body member located relative to a first side of the workpiece and providing a further body member located relative to a second side of the workpiece on the opposite side of the workpiece to the first workpiece and the further body member serves to urge the workpiece towards the body member when a local thickness of the workpiece is reduced.

21. (NEW) The method as claimed in claim 16, further comprising the step of providing the workpiece on the carrier for the plane of the workpiece, defined by the X-axis and the Y-axis, to be one of vertical or at some other angle to the horizontal.

22. (NEW) An apparatus for laser micro-machining a work piece by a laser, the apparatus comprising:

a carrier forming a part of a transport system whereby the carrier can be displaced along a path parallel to an X-axis of the workpiece, a Y-axis lying transverse the path, and a Z-axis lying transverse the path;

a means whereby an output beam from a laser can be one of focused or imaged at a predetermined working datum defined relative to the path which path is established by means of the transport system to traverse the first datum position;

a plane defined by the X- and Y-axis lying substantially perpendicular to the output beam;

a drive means for causing the workpiece to be displaced along the path by way of the transport system so as to enable the work-piece to be subject at the datum position to micro-machining by way of the laser, by following a process of:

maintaining means for regulating distance between a current working datum position and a current first surface position of the workpiece in the vicinity of the datum position; and

focusing adjusting means, enabling the working datum position to accord with local variations in thickness of the workpiece so that the working datum position is maintained at a fixed distance relative to a surface of the workpiece and

providing a carrier and transport system enabling the workpiece to be displaced along the path with the plane of the workpiece defined by the X-axis and the Y-axis either vertical or at some other angle to the horizontal.

23. (NEW) The apparatus claimed in claim 22, wherein the means for focus adjusting serves to displace one of the focusing or imaging lens relative to the workpiece.

24. (NEW) The apparatus claimed in claim 22, wherein the maintaining means serves to displace the work-piece relative to one of the focused beam or image.

25. (NEW) The apparatus claim in claim 22, wherein a distance sensing device comprising a body member riding on a fluid cushion on a first surface of the workpiece, the fluid cushion being established by a flow of fluid fed from the body member so as to maintain the body member at a predetermined distance from first surface; and in the event the body member is displaced from a current position of the body member due to a variation in thickness of the workpiece, any change in position of the body member perpendicular to the first surface is used to modify the focusing or imaging forming step to cause a corresponding change in the current datum position to restore the working datum position to a fixed distance relative to the first surface of the workpiece.

26. (NEW) The apparatus as claimed in claim 22, wherein the body member located relative to a first side of the workpiece and a further fluid emitting body member is located relative to a second side of the workpiece on the opposite side of the work-piece and the path to the first workpiece and fluid output from the further body member serves to urge the workpiece towards the body member when a local thickness of the workpiece is reduced.

27. (NEW) The product in the form of a substrate which is micro-machined by the method of claim 16.

28. (NEW) The product in the form of a substrate which is micro-machined by the apparatus of claim 22.